



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Leamon  
Serial Number: 09/465,690  
Filing Date: December 17, 1999  
Art Unit: 3623  
Examiner: Andre D. Boyce  
For: **METHOD AND SYSTEM FOR  
EMPLOYEE WORK  
SCHEDULING**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE TO OFFICE ACTION**

**I.**

**INTRODUCTION**

At the outset, the Examiner is thanked for his withdrawal of the previously pending claim rejections. The Office action mailed May 5, 2004 raised certain new issues, which are addressed by this Response. Reconsideration and favorable action are respectfully requested.

**II.**

**THE WRITTEN DESCRIPTION REJECTION**

Claims 1, 7-9 and 19 are newly rejected under § 112, 1<sup>st</sup> paragraph, as failing to comply with the written description requirement due to the phrase “wherein the vector represents a numerical value that indicates how well the current schedule fits the current agent’s preferences.” This phrase allegedly “is not described in the specification in such a way as to reasonably convey to or enable one skilled in the art” (Office Action, at ¶ 4). For the reasons set forth below, the Examiner is asked to reconsider this rejection.

Specific support for this clause is found in at least the following passages of the written description:

“A numerical value representing how each set of schedules fit’s each agent’s preference factors are compiled into a multi-word vector 174 as shown in FIG. 3. Each type of preference is assigned a bit range within the vector. The bits used in each range represent the difference ... between the assigned schedule and the preferred schedule for each preference. ... Where an agent has a list of preferences, the difference will be defined specifically for each type of preference.” (See, page 8, lines 14-25).

“The order of the bit ranges is determined by the priority ranking list provided by the agent or by default. The highest priority is assigned to highest order bit range 176. The lowest priority is assigned to lowest order bit range 178. The other priorities are place[d] in the intervening bit ranges in order of priority. In this manner, each agent has a vector 174 that can be calculated for any schedule indicating a prioritized fit of that schedule for that agent.” (See, page 9, lines 1-8).

“A vector for the current agent is then calculated for every schedule.” (See, page 9, lines 21-22).

Thus, the written description clearly and unambiguously states that the inventive method generates a “vector” during a given processing iteration, that the vector represents a “numerical value,” that the value as calculated has a “bit range” that indicates a “prioritized fit” of that schedule for that agent, considering the agent’s preferences. Further, the text at page 9, lines 21-22 expressly states that a vector is created for the current agent and calculated for each schedule then available. The schedule fit, of course, is encoded in the vector. Thus, this subject matter provides ample support for the “how well the current schedule fits the current agent’s preferences” clause that is set forth in independent claims 1 and 19.

Stated another way, a skilled artisan likely is a person familiar with work scheduling. The invention set forth in claims 1 and 19 describes a computer-implemented work scheduling method “for automatically assigning a group of agents to a plurality of available schedules,” and that process includes a number of iterative steps. When the iteration of step (a) is carried out, a vector is generated “for each schedule that is available

to be assigned to a current agent.” This is the predicate language for the “how well the current schedule fits” clause that is set out later in the claim. One of ordinary skill in this art would understand that a vector with a first value “fits better” than a vector with a given second value. As the undersigned and Mr. Leamon demonstrated during the recent Interview, as the bit ranges in each vector are filled in, the value of the vector changes. The resulting “numerical value” indicates the “fit,” which is all the language requires. Thus, the original written description (including those passages identified above) provide ample support for the clause identified by the Examiner.

As claims 1 and 19 comply fully with § 112, 1<sup>st</sup> paragraph, withdrawal of this rejection is respectfully requested.

### III.

#### THE ART REJECTION

Claims 1, 3-9 and 12-19 are newly rejected under §103(a) as being unpatentable over Castonguay et al. (‘134), in view of Crockett et al. (‘355), further in view of Gabriner et al. (‘403). This rejection is traversed.

At the outset, the Examiner’s unexplained withdrawal of the allowance of claims 12-15 (as set forth in the Office action dated September 26, 2003) is not fairly explained and (with all due respect) is not reasonable given the advanced state of the prosecution. As discussed during the Interview, the only change made to previously allowed claim 12 was minor and done solely to make the claim more readable. Stated another way, no change in scope was effected by the recent amendment. Thus, as claims 12-15 were already once allowed over the three cited references, the Examiner’s new position (regarding unpatentability over these very same references) is not justified. The Manual of Patent Examining Procedure makes it clear in § 706.04 that “great care should be exercised” before a rejection of a previously allowed claim should be entered.<sup>1</sup>

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<sup>1</sup> The MPEP further states that the proposed rejection must be first submitted “to the primary examiner for consideration.” Based on the record, it is not clear that this additional requirement of § 706.04 was met (in other words, that the primary examiner was aware that claims 12-15 had been previously allowed).

Despite their prior allowance, the Examiner simply states that claims 12-15 “are rejected based upon the rejection of claims 3-6, respectively, since they are the computer program product claims, corresponding to the method claims.” (See, Office action, at page 7). This correspondence notwithstanding, as noted above, claims 12-15 were previously allowed and their scope was not changed by the recent amendment. Thus, the Examiner has not reasonably explained why they are no longer allowable. This action would appear to be in violation of the practice set forth in MPEP § 706.04.

Likewise, the Examiner states that claims 16-18 are rejected “based upon the rejection of claims 7-9, respectively, since they are the computer program product claims corresponding to the method claims.” This argument is misplaced. The Examiner is reminded that claims 16-18 had their dependency changed by the recent response; they are now simply dependent from previously-allowed independent claim 12. For the reasons set forth above (mainly that claim 12, once allowed, should remain allowed), dependent claims 13-18 are patentable as well.

Turning now to the substance of the rejection, the Examiner is reminded that the ‘134 and ‘355 patents are owned by the assignee of the present invention. While the ‘134 patent is concerned generally with scheduling agents in a contact center environment, the patent does not disclose or suggest the specific computer-implemented technique for automatically assignment a group of agents to a plurality of available schedules positively recited, for example, in claims 1 and 19. In particular, the ‘134 patent specifically does not teach having an agent determine preferences for a plurality of factors, enabling the agent to assign an order of importance for the factors, determining a ranking for each agent from a highest rank to a lowest rank based on a given criteria, or the step of assigning an agent to a schedule using an iterative vector-based technique (namely, the nested iterative steps (a)(i)-(ii) – (b) as positively recited). Indeed, the Examiner admits that “Castonguay et al. does not explicitly disclose performing the sub-steps on an iterative basis, from a highest ranked agent to a lowest ranked agent, the sub-steps being assigning the difference valued for each factor to a bit range within a vector for the current agent and current schedule wherein the factor having a highest importance is assigned to a highest order bits of the vector and the remaining factors assigned to subsequent orders of bits in an assigned order of importance,

wherein the vector represents a numerical value that indicates how well the current schedule fits the current agent's preferences, ..." (Office action at page 4, emphasis supplied). In this latter respect, the Examiner is correct, as clearly the '134 patent does not disclose or suggest the computer-implemented method now positively recited.

Crockett et al. '355 do not make up for these admitted deficiencies in the primary reference. As the Examiner again (correctly) notes, the '355 "does not disclose an ordered bit range with the vector." The '355 patent, of course, deals with skills-based scheduling, and it does not disclose or suggest creating schedules based on agent preferences within the meaning of the subject invention. Even if there were some motivation to combine the '134 and '355 patents, which the patents themselves do not provide, the combination would still not include the recited iterative vector-based selection technique as now set forth in claim 1, steps (a)(i)-(ii) – (b). The Examiner appears to acknowledge this fact through his citation of the Gabriner et al. teaching, which is said to describe the use of a data preference" vector to facilitate scheduling. With all due respect, the Examiner is asked to reconsider this position, as Gabriner et al. does not teach what the Examiner contends that it does.

In particular, Gabriner et al. state that a scheduling system can be based on hard and/or soft constraints, the former being "rules and requirements" and the latter being "rules and preferences." During the scheduling process, the hard constraints must be honored while the soft constraints need not be. Importantly, the "bit array 30" identified by the Examiner as being analogous to the "numerical value vector" of the claimed invention is only used to encode "hard constraint information" and not preference information. Moreover, in relying upon this teaching, the Examiner has not explained how the "resource bit array" can be considered analogous in any way to the recited vector. Indeed, it cannot be. In this regard, the Examiner should note that Gabriner et al. teach away from the present invention when they go on to describe that the "contents of the resource bit array 30 usually don't change, and can be stored in a permanent database for access by the GA scheduling system." Thus, in contrast to the vector of the present invention, which is created "for each schedule that is available to be assigned to a current agent," the resource bit array is simply a hard-coded, unchanging data structure that identifies "rules and

requirements.” As the method of claim 1 iterates through its recited processing steps, in fact numerous vectors are created, and these vectors have different numerical values. If they did not, the algorithm would not work. Grabiner’s hard-coded resource bit array 30 is something completely different. Stated another way, there is nothing in Grabiner et al. that would disclose or suggest that one of ordinary skill in the art modify either Castonguay et al. or Crockett et al. ‘355 to derive the specific subject matter now positively recited in claims 1 and 19.

Stated another way, even if one of ordinary skill were motivated to combine the three references, and there is no evidence of any such suggestion to do so, the combined teachings would still lack the “performing the ... sub-steps on an iterative basis, from a highest ranked agent to a lowest ranked agent” limitation. Nothing in these references would motivate one of ordinary skill to come up with the specific algorithmic steps set forth in claims 1 and 19 and, in particular, the iterative processing that generates a given vector value that indicates how well a current schedule fits a current agent’s preferences, and assigning to the current agent the schedule having the lowest numerical value. Without an express disclosure or suggestion of this subject matter “as a whole,” the § 103(a) rejection cannot stand.

The above comments with respect to the deficiencies of the combined references with respect to independent claims 1 and 19 apply equally well with respect to the other independent claims (including previously allowed claim 12).

For these reasons, a Notice of Allowance is respectfully requested.

Respectfully submitted,

By:

  
ATTORNEY FOR APPLICANTS



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Firm or Individual name	David H. Judson
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